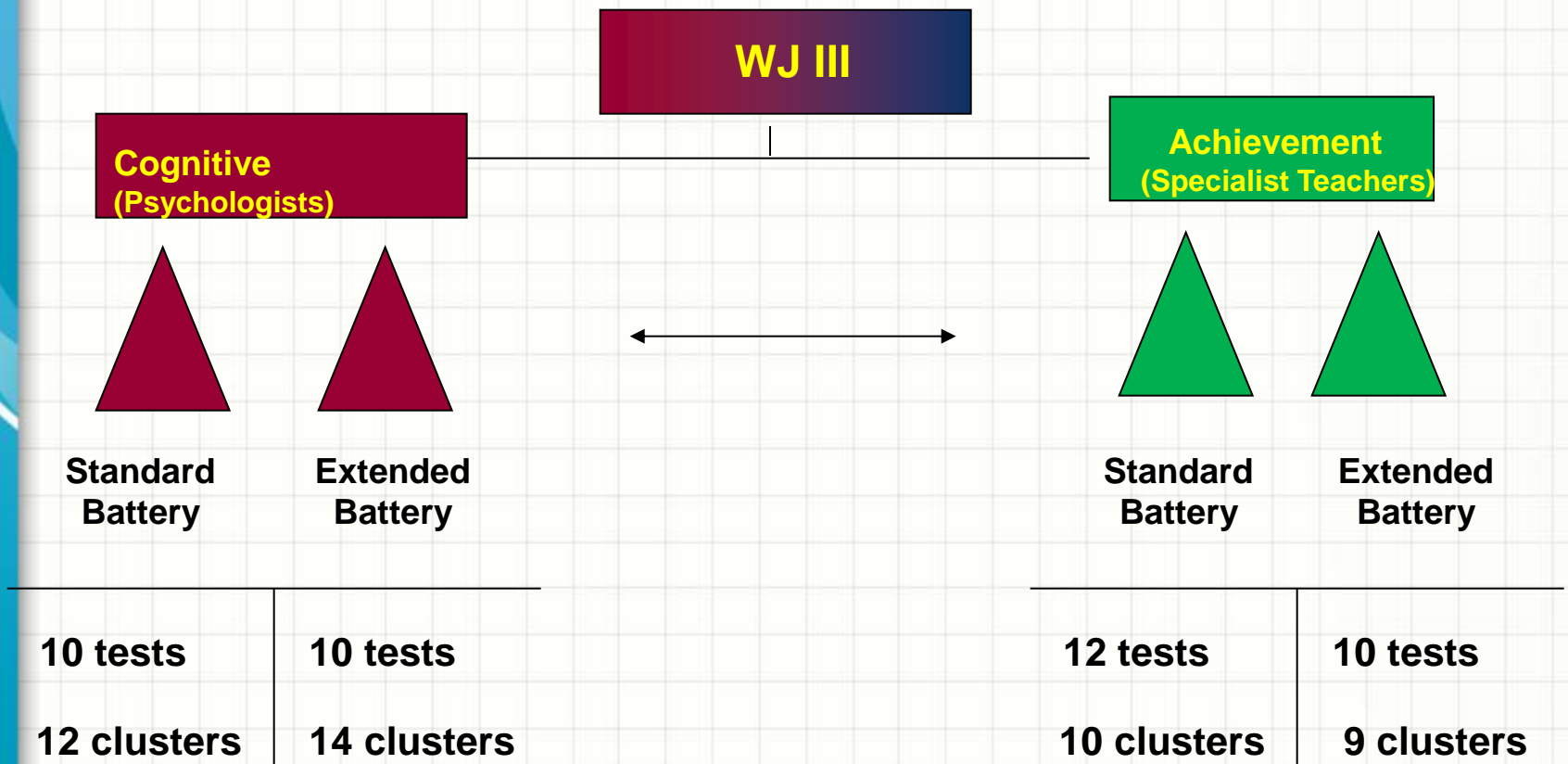


# **WOODCOCK JOHNSON THIRD EDITION TESTS OF COGNITIVE ABILITIES**

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Psychological Assessments Australia  
SPA Conference, Perth  
September 2015



# WJ III



# WJ 3 Cognitive Battery

## Standard Battery

- 1. *Verbal Comprehension***
- 2. Visual-Auditory Learning**
- 3. Spatial Relations**
- 4. Sound Blending**
- 5. *Concept Formation***
- 6. *Visual Matching***
- 7. Numbers Reversed**
- 8. Incomplete Words**
- 9. Auditory Working  
Memory**
- 10. Visual-Auditory  
Learning-Delayed**

## Extended Battery

- 11. General Information**
- 12. Retrieval Fluency**
- 13. Picture Recognition**
- 14. Auditory Attention**
- 15. Analysis-Synthesis**
- 16. Decision Speed**
- 17. Memory for Words**
- 18. Rapid Picture Naming**
- 19. Planning**
- 20. Pair Cancellation**

# WJ 3 Scoring

- Computer scoring free with kit
- Testing was conducted monthly throughout school year – age and grade equivalents based on actual sample data
- Different scores provided for different purposes

## Levels of Interpretive Information in the WJ III

Level 1	Qualitative, informal, error analysis. observations	Useful for instructional planning Useful for behavioral observations
Level 2	Level of Development Level of Instruction	Age Equivalent Grade Equivalent
Level 3	Level of Proficiency Easy to Difficult Range	Relative Proficiency Index, Developmental/Instructional Zone
Level 4	Relative Standing in Group Rank Order	Standard Scores Percentile Ranks

# Advantages of WJ 3

- Broadest coverage of cognitive abilities relevant to school achievement
- Broadest coverage of academic achievement and diagnostic assessments in a single battery
- Single battery from Preschool to Adult – cost effective
- Administration & scoring generally easier than other individual assessments
- High interest tests
- Detailed teaching of sample items



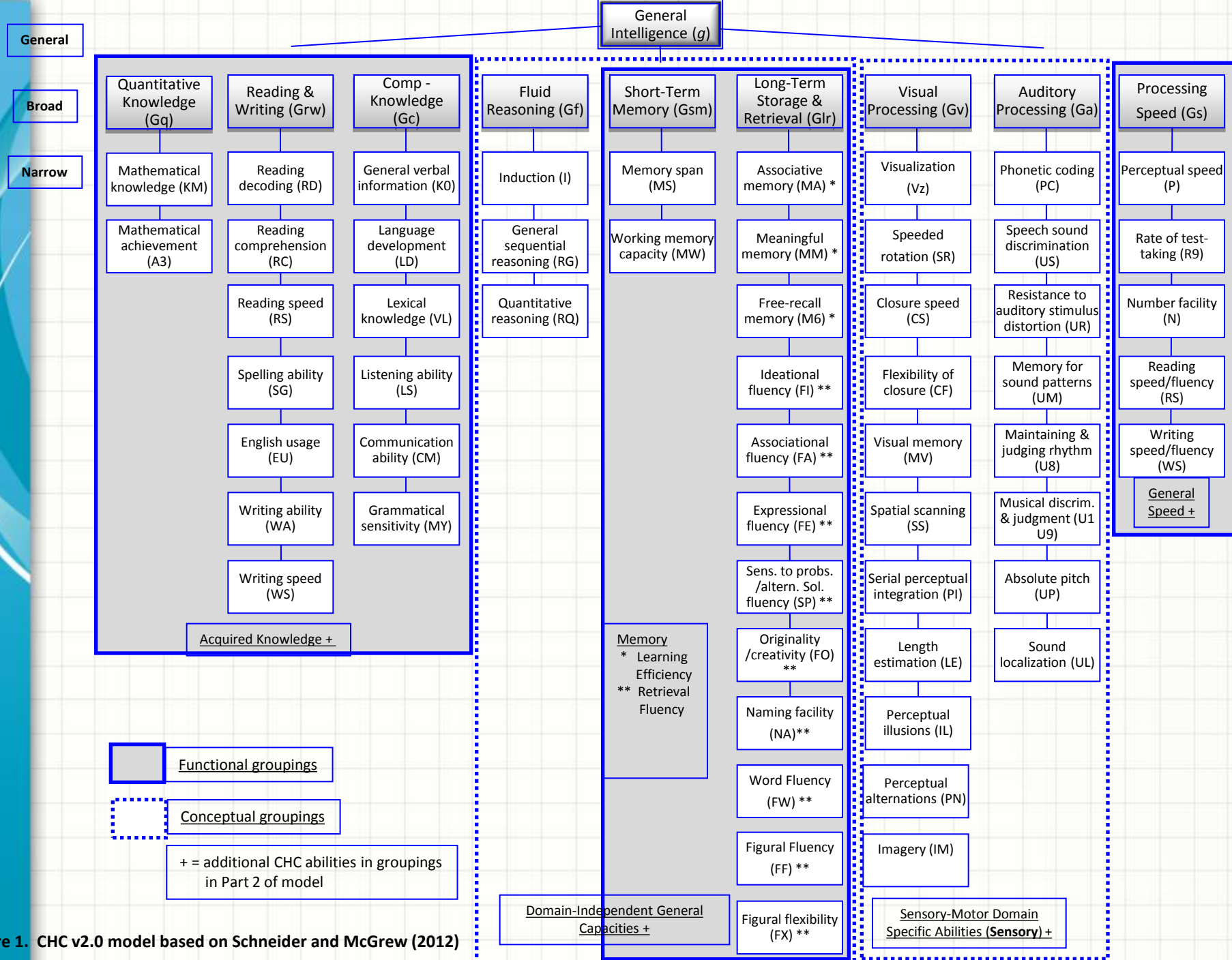
# Advantages of WJ 3

- Strongest theoretical grounding (validity) of any individual cognitive test.
  - WJ 3 used both exploratory & confirmatory factor analyses (samples chosen through bootstrapping).
  - WJ 4 used similar analyses, plus Multi-Dimensional Scaling (Guttman Radex) and Cluster Analysis

# Advantages of WJ 3

- Detailed research using WJ 3 on relationships between academic achievement and underlying cognitive constructs gives high levels of confidence in using Scholastic Aptitude Clusters in a “Patterns of Strengths & Weaknesses” approach in SLD diagnosis and treatment/intervention planning
- Different scores for different purposes allows for more flexible and broader use





**Figure 1. CHC v2.0 model based on Schneider and McGrew (2012)**

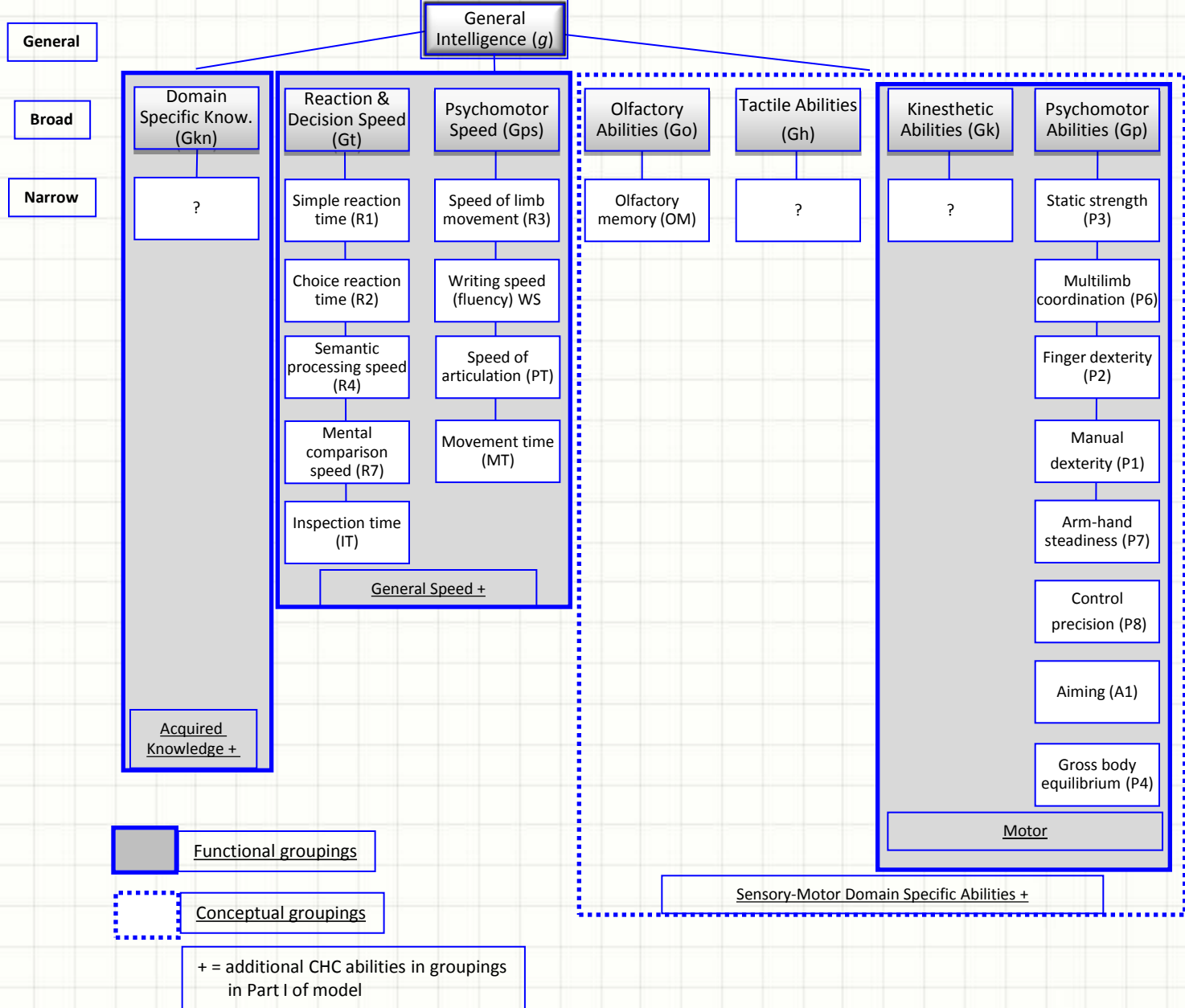
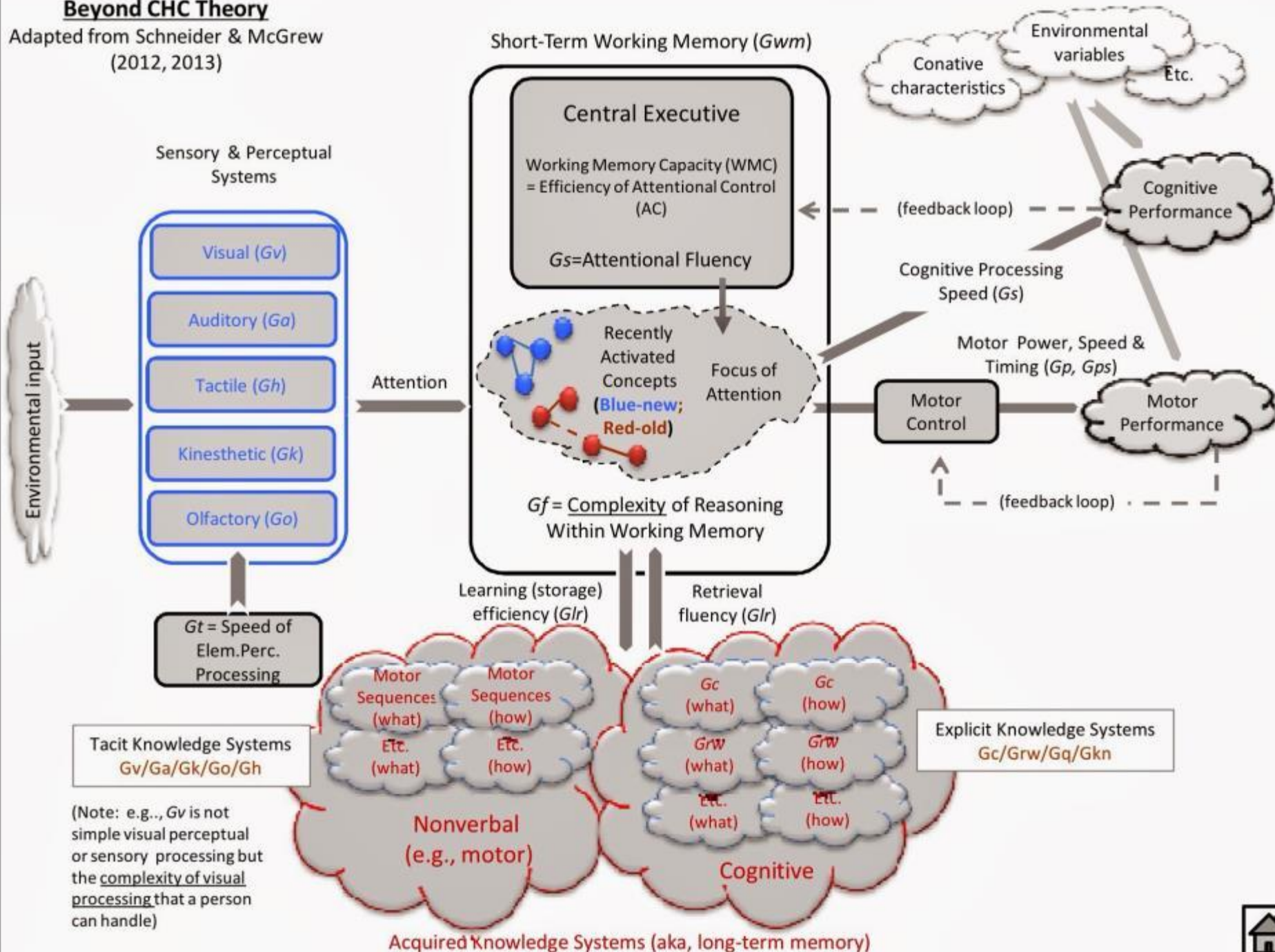
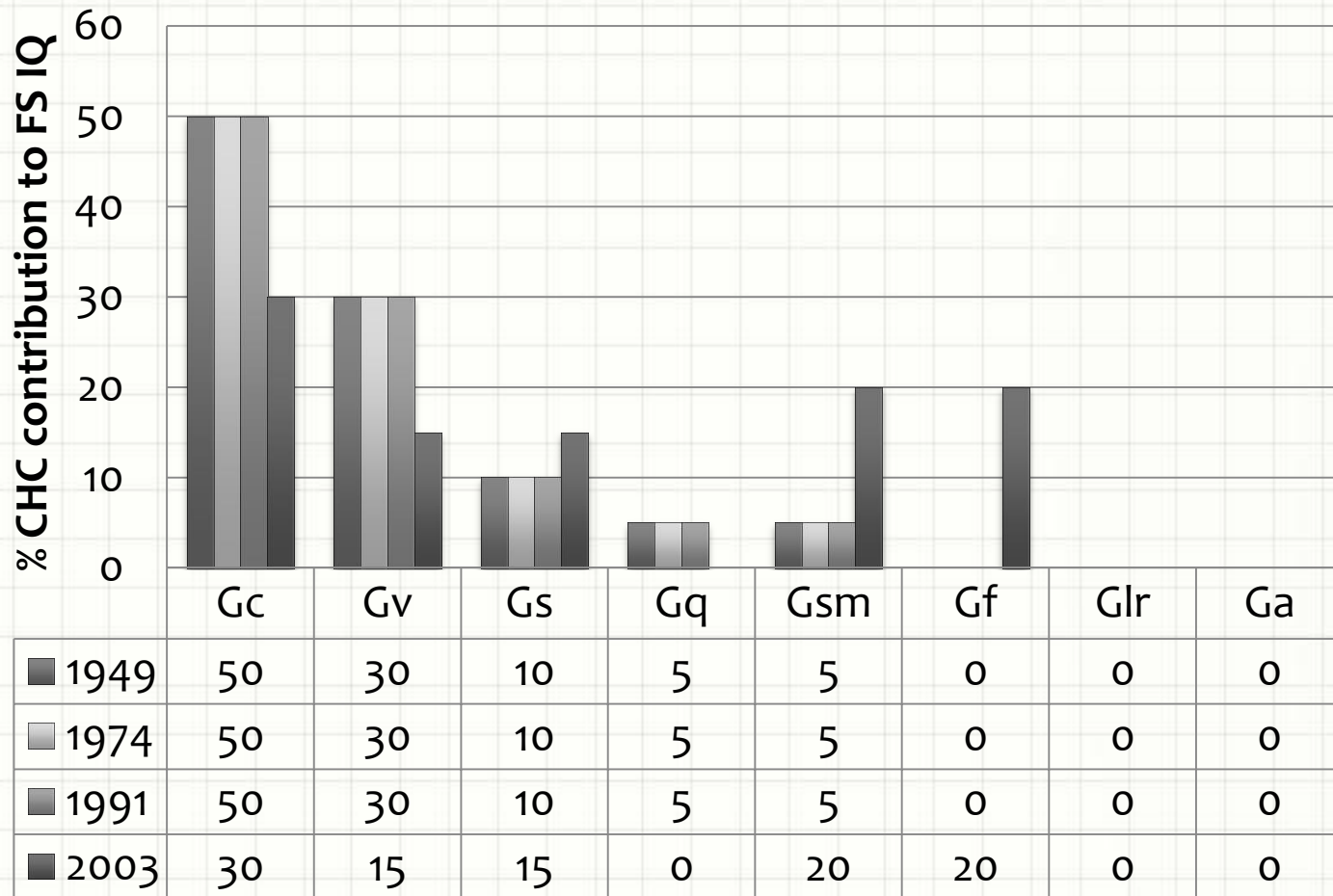
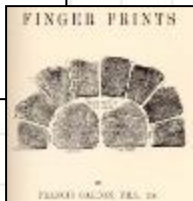


Figure 1 (continued). CHC v2.0 model based on Schneider and McGrew (2012)

# Beyond CHC Theory

Adapted from Schneider & McGrew  
(2012, 2013)





WISC  
WISC-R  
WISC-III  
WISC-IV

### **The evolution of the CHC ability content of the various WISC FS IQ scores**

© Institute for Applied Psychometrics, Kevin McGrew, 2-5-2010



## Located in Test Books and Examiner Manual

# Books and

Tests of Cognitive Abilities		Intellectual Ability					Cognitive Categories					CHC Factors					Clinical Clusters								
		General Intellectual Ability (Std)	General Intellectual Ability (Ext)	Brief Intellectual Ability	Verbal Ability (Std)	Verbal Ability (Ext)	Thinking Ability (Std)	Thinking Ability (Ext)	Cognitive Ability (Std)	Cognitive Ability (Ext)	Cognitive Efficiency (Std)	Cognitive Efficiency (Ext)	Comprehension-Knowledge (Gc)	Long-Term Retrieval (Glr)	Visual-Spatial Thinking (Gv)	Fluid Processing (Ga)	Processing Reasoning (Gr)	Short-Term Speed (Gs)	Phonemic Memory (Gsm)	Working Memory	Broad Attention	Cognitive Fluency	Executive Processes	Delayed Recall	Knowledge
Standard Battery	1. Verbal Comprehension	■	■	■	■	■				■															
	2. Visual-Auditory Learning	■	■				■	■			■														
	3. Spatial Relations	■	■				■	■				■													
	4. Sound Blending	■	■				■	■					■					■							
	5. Concept Formation	■	■	■			■	■						■								■			
	6. Visual Matching	■	■	■					■	■					■										
	7. Numbers Reversed	■	■						■	■							■		■	■					
	8. Incomplete Words																	■							
	9. Auditory Working Memory																		■	■					
	10. Visual-Auditory Learning-Delayed																						■ <sup>1</sup>		
Extended Battery	11. General Information		■			■				■														■ <sup>2</sup>	
	12. Retrieval Fluency		■					■			■										■				
	13. Picture Recognition		■					■				■													
	14. Auditory Attention		■					■					■							■					
	15. Analysis-Synthesis		■					■						■											
	16. Decision Speed		■						■							■					■				
	17. Memory for Words		■						■								■								
	18. Rapid Picture Naming																				■				
	19. Planning																					■			
	20. Pair Cancellation																		■		■				

## WJ III Gc

LD

VL

Etc.

KO

LS

- The breadth and depth of knowledge of a culture
- The ability to communicate one's knowledge (especially verbally)
- The ability to reason using previously learned knowledge or procedures
- Originally described as "crystallized intelligence"

Language Development (LD): General development, or the understanding of words, sentences, and paragraphs (not requiring reading), in spoken native language skills.

Lexical Knowledge (VL): Extent of vocabulary that can be understood in terms of correct word meanings.

Listening Ability (LS): Ability to listen and comprehend oral communications.

General (verbal) Information (KO): Range of general knowledge.



## WJ III Gf

RG

I

Etc.

RQ

RE

- Novel reasoning and problem solving that depend minimally on learning and acculturation
- Ability to reason, form concepts, and solve problems that often include novel information or procedures
- Induction & deduction are hallmarks of Gf

General Sequential Reasoning (RG): Ability to start with stated rules, premises, or conditions, and to engage in one or more steps to reach a solution to a problem.

Induction (I): Ability to discover the underlying characteristic (e.g., rule, concept, process, trend, class membership) that governs a problem or a set of materials.

Quantitative Reasoning (RQ): Ability to inductively and deductively reason with concepts involving mathematical relations and properties.

Speed of Reasoning (RE): (Not clearly defined by existing research.)

## WJ III Glr

MA

FI

Etc.

NA

MM.

- Ability to store information and fluently retrieve it later
- Associative storage & retrieval
- Not to be confused with acquired stores of knowledge (Gc and Gq)

**Associative Memory (MA):** Ability to recall one part of a previously learned but unrelated pair of items when the other part is presented (i.e., paired-associative lrng.)

**Ideational Fluency (FI):** Ability to rapidly produce a series of ideas, words, or phrases related to a specific condition or object. Quantity not quality is emphasized.

**Naming Facility (NA):** Ability to rapidly produce names for concepts when presented with a pictorial or verbal cue.

**Meaningful Memory (MM):** Ability to recall a set of items where there is a meaningful relation between items or the items comprise a meaningful story or connected discourse.

## WJ III Glr

MA

FI

Etc.

NA

MM.

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# WJ III Ga

PC

UR

etc.

US

U1/9

- Ability to analyze, synthesize, & discriminate auditory stimuli

- Ability to perceive and discriminate speech sounds that may be presented under distorted conditions

Phonetic Coding: Analysis (PC): Ability to segment larger units of speech sounds into smaller units of speech sounds (analysis) and the ability to blend smaller units of speech together into larger units of speech (synthesis)

Speech Sound Discrimination (US): Ability to detect differences in speech sounds under conditions of little distraction or distortion.

Resistance to Auditory Stimulus Distortion (UR): Ability to understand speech and language that has been distorted or masked in one or more ways.

General Sound Discrimination (U3): Ability to discriminate tones, tone patterns, or musical materials with regard to their fundamental attributes (pitch, intensity, duration, and rhythm)

Musical Discrimination and Judgment (U1 U9): Ability to discriminate and judge tonal patterns in music with respect to melodic, harmonic, and expressive aspects (e.g., phrasing, tempo, harmonic complexity, intensity variations)

# WJ III Gs

P

Etc.

N

R4

R9

- Ability to perform automatic cognitive tasks, particularly when measured under pressure to maintain focused attention
- Attentive speediness
- Usually measured by tasks that require rapid cognitive processing but little thinking

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**Perceptual Speed (P):** Ability to rapidly search for and compare known visual symbols or patterns presented side-by-side or separated in a visual field.

**Semantic Processing Speed (R4):** Reaction time when the decision requires some encoding and mental manipulation of stimulus content.

**Rate-of-Test-Taking (R9):** Ability to rapidly perform tests which are relatively easy or that require very simple decisions.

**Number Facility (N):** Ability to rapidly and accurately manipulate and deal with numbers, from elementary skills of counting and recognizing numbers to advanced skills of adding, subtracting, multiplying, and dividing numbers. (Also under Gq)



## WJ III Gsm

MS

MW

Etc.

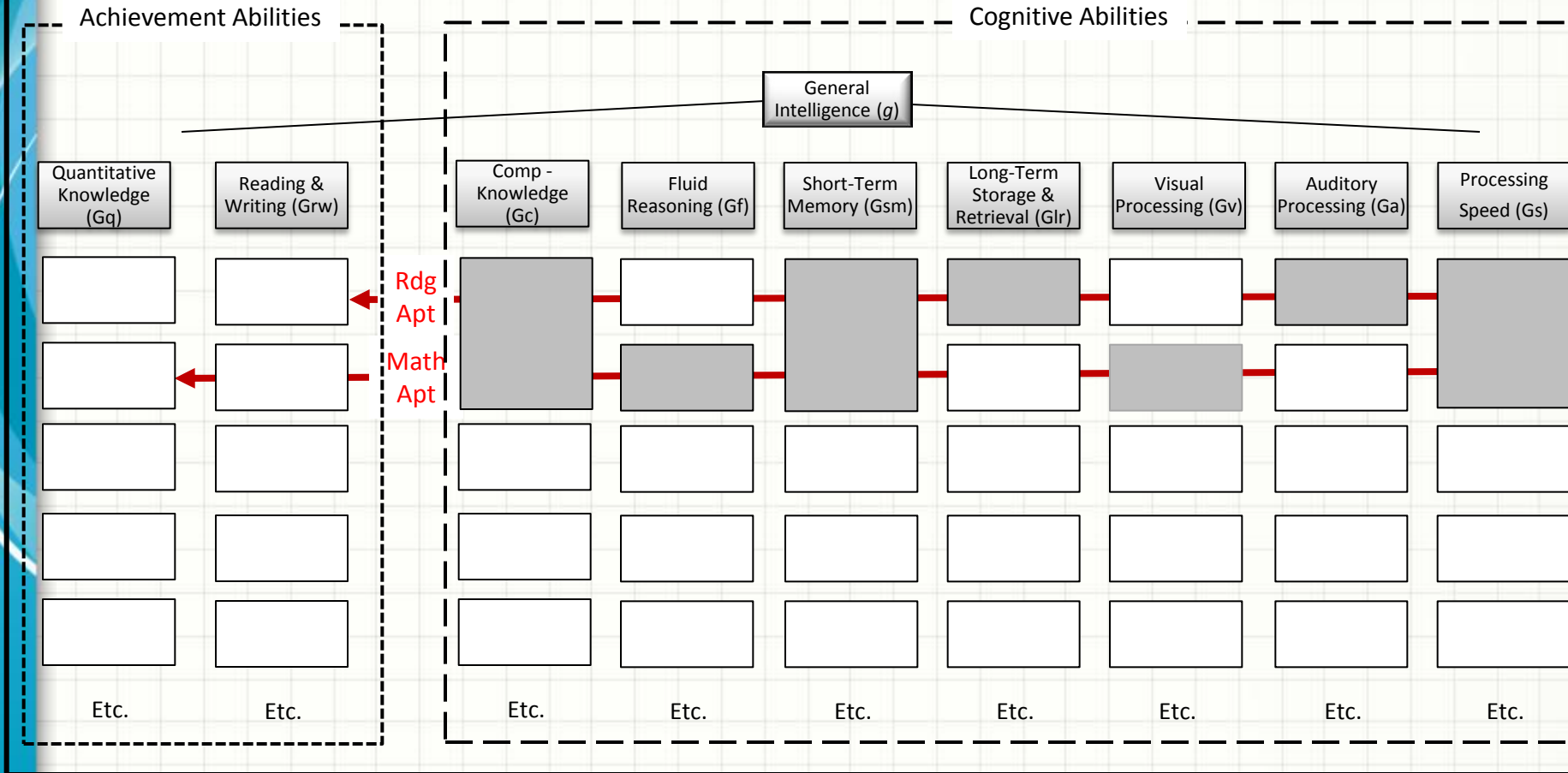
- Ability to apprehend and hold information in immediate awareness and then use it within a few seconds
- 7 chunks of information (+ or – 2)

**Memory Span (MS):** Ability to attend to and immediately recall temporally ordered elements in the correct order after a single presentation.

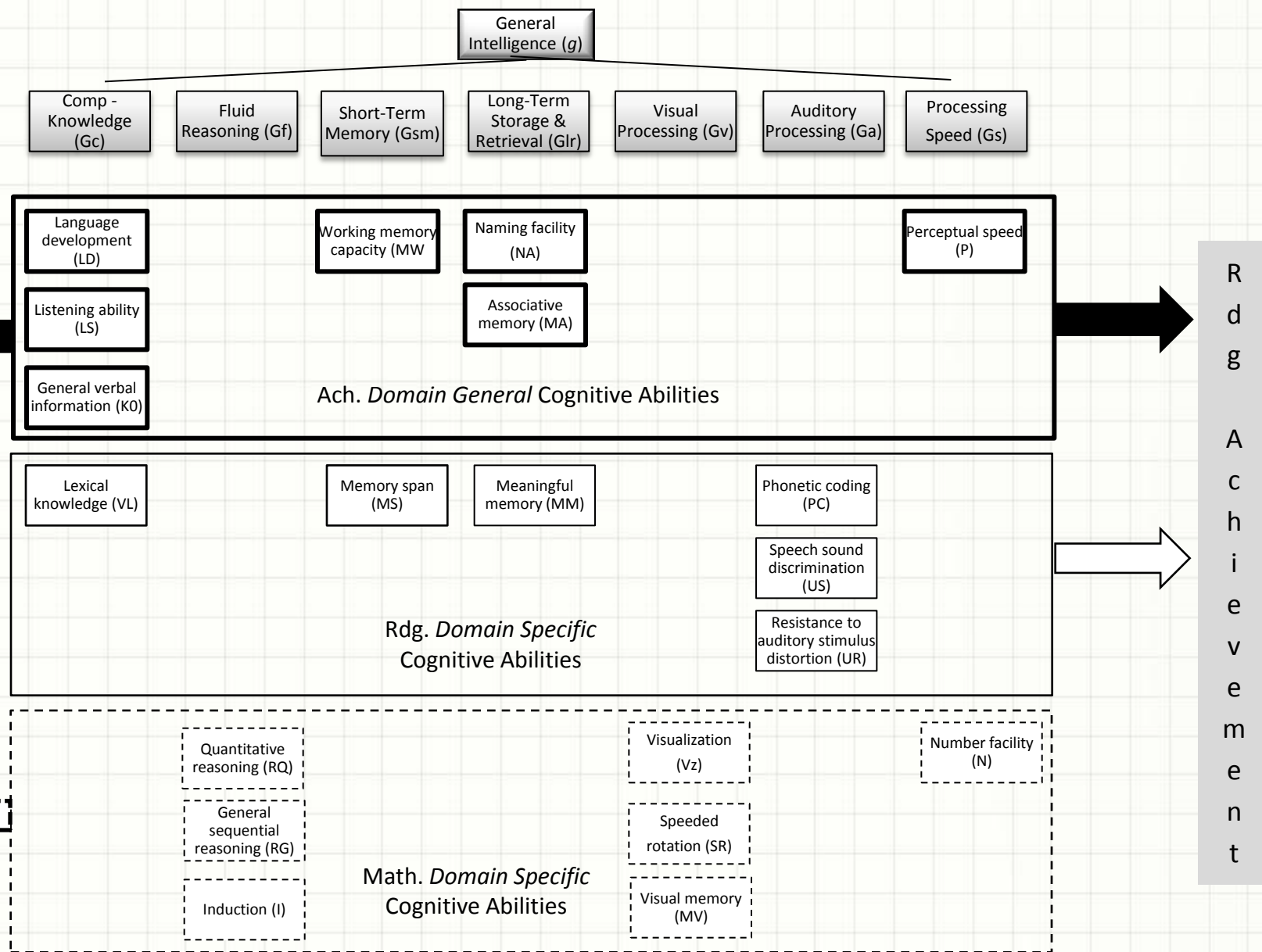
**Working Memory (MW):** Ability to temporarily store and perform a set of cognitive operations on information that requires divided attention and the management of the limited capacity of short-term memory.



# Abilities



**Conceptual distinction between Abilities: Cognitive abilities, achievement abilities, and aptitudes**



[Developmental (age-based) differences are not captured by this abridged summary. See McGrew & Wendling (2010) for this information]

**Established narrow CHC → rdg./math ach. relations abridged summary**



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